

times are mixed with it or substituted for it, as well as from other substitutions that have been occasionally noticed. The last two are characteristic of the natural order Gentianeæ, and are also useful in identifying the drug.

That the book is not without errors and omissions we are not prepared to say. What book, especially in its first edition, can ever be so regarded? Thus, for instance, under the head of capsicum fruits, Mr. Greenish, though mentioning that the plant is cultivated in Eastern Africa, does not mention Zanzibar in particular as one of the commercial kinds known in the British markets, nor does he even allude to Japan as a source of these pungent fruits, though of late large quantities have been imported thence to this country. But with a book so carefully worked out and so thoroughly well got up, it is ungracious to find faults, many of which have no doubt already been observed by its author and noted for correction in a new edition, which will probably not be long before it is called for, as the book is one that must be in the hands of the continuously increasing number of pharmaceutical students.

We had almost forgotten to say that the numerous illustrations add much to the value of the book. They have been carefully selected, and the source from which they are taken is acknowledged beneath each figure.

#### OUR BOOK SHELF.

*Descriptive General Chemistry.* By S. E. Tilman. Second Edition. Pp. x+429. (London: Chapman and Hall, Ltd. New York: John Wiley and Sons, 1899.)

THE author of this volume is professor of chemistry, mineralogy and geology in the United States Military Academy, and the book embodies an attempt to present chemical science in a form and compass adapted to special circumstances. Whilst in the opinion of the author "the chemical knowledge most requisite to the average professional soldier differs but little from that essential to other educated men . . . the experience and judgment of the Academic Board and of their military superiors" has limited the course to about two months. From this statement, as well as from the concentration of three sciences in one professor, it would appear that the dogged resistance to the encroachment of science on the art of war which distinguishes the Anglo-Saxon in this country, is well maintained in America. It is evident, also, that the task of the author is no light one. He has discharged it by presenting a tolerably full and very lucid account of the chief principles of chemistry, followed by a considerable amount of descriptive matter, illustrated, and we may say illuminated, where possible, by reference to things of military interest. The outcome is a very readable volume, containing information which, if it could be conveyed under reasonable conditions, would be of great value to the future soldier. But it need hardly be said that a mass of scientific information, however skilfully selected and well written or well spoken, will give in no important measure a scientific habit of mind, or an animate knowledge of science. On the whole, however, Prof. Tilman has probably done the best possible under the circumstances.

Among matters of special interest in the book are the accounts of American metallurgical processes. The descriptions of important chemical industries are also clear and concise. The weakest point to be noticed in the book is the treatment of fuel calorimetry. There is

no description of a calorimeter or a pyrometer, and the old misleading formulæ for the calculation of "calorific power" and "calorific intensity" are introduced. The exhaustive experiments of the late Scheurer-Kestner, which showed the uselessness of such formulæ, do not seem to have become as well known as they should be.

A. S.

*Zoologia.* By Prof. Achille Griffini. Pp. xvi + 384. (Milan: Ulrico Hoepli, 1900.)

THIS book is divided into an introductory part (26 pp.), dealing with the history and scope of zoology, and the broader principles of morphology and physiology of animal forms, followed by a main part (337 pp.), in which the great groups of animals are successively dealt with in a roughly descending order, the whole ending with an "epilogue" (16 pp.), embodying an ambitious classificatory table, and certain philosophic deductions which, in deference to the scruples of his countrymen, the author is willing to let pass unread! It is in places very thin and antiquated, and its illustrations are on the whole the most interesting feature, since they alone proclaim it a text-book mainly begotten of the text-books, with little fresh thought or aim at originality. There are five hundred and five figures in all, many representing animals in a state of nature, at times with theatrical sensationalism, others delineating the facts of anatomy and minute structure, still others schematic. Taken collectively, they are an *omnium gatherum* of an inferior order. Page after page bears the time-worn figures which we find in nearly every text-book under the sun, here reproduced without acknowledgment and in some cases in a disguised form; and when originality is attempted the result is in places ludicrous; as, for example, in the physiological scheme on p. 81, and the figure of the Molluscan nervous system on p. 329. A set of figures is repeatedly introduced in supposed representation of the eggs and larvæ of the frog (*Rana*)—the egg-mass is that of *Pelodytes*, the larvæ are a combination of the old, old figures of Rösel von Rosenhof (which, for that matter, still do duty in current works in our own tongue), of Ecker and others with which we have long been familiar. On p. 224 there is a figure of a presumed *Ascidia*, which, as Huxley would have said, "illustrates, but does not adorn" the text, since it is that of a *Ciona*, curiously enough copied (but with reversal) from Huxley's "Manual of the Invertebrata," in which it is erroneously named *Phallusia mentula*. The figure of a horse (p. 121) simply insults that graceful beast. The author in a lengthy preface deplores, with just cause, the existing methods of teaching natural science in the Italian schools, for which his book is especially designed in accordance with the requirements of the State; and in support of his plea for improvement he cites forcible passages from addresses on the subject by Profs. Emery, Camerano (his teacher) and others. Proceeding to the question of nomenclature, he excuses himself the adoption of its modern rules on the grounds of his having been on a former occasion reproached for writing *Molge* instead of *Triton*. For this, something may perhaps be said from his point of view, but there is no excuse for the elevation of the racial names of mankind to specific rank (*Ex. Homo arcticus, H. cafer, et sic de caeteris*). Both figures and Latin names of some of the humbler creatures—transcribed from books which are old and out of date—are antiquated, and we deem further comment unnecessary, except to remark that the treatment of many great groups is so meagre that it is well-nigh useless.

G. B. H.

*The British Journal Photographic Almanac for 1900.* Edited by Thomas Bedding. Pp. 1516. (London: Henry Greenwood and Co., 1899.)

REGULARLY every year we receive this most useful annual, and as regularly we have to record its growth.

This year the volume reaches the grand total of 1516 pages, and is the largest yet issued, exceeding that of last year by about 40 pages. The popularity of such a book can be best judged by its sale, for photographers soon find out which of the numerous books on this subject are suited to their needs. We gather from the *British Journal of Photography* that the 1899 edition of this almanac, an edition which was composed of 20,500 copies, was rapidly disposed of within three months of publication, a fact which speaks for itself. This, the thirty-ninth annual issue, is quite up to, even if it does not exceed in interest, the previous volumes. It will be found an absolute mine of information: we notice a great number of articles dealing with all branches of the art which gives the reader hints for future work, and results of the experience gained by others. Other parts are devoted to a summary of the progress made during the past year, practical notes and suggestions, miscellaneous information, and many other sections of interest. As usual, the advertisements form a great portion of the book.

The almanac is carrying on the crusade of advocating the use of the metric system in all photographic matters, and has great hopes of the practice becoming universal. To further this object the metric equivalents of the British system are given in all tables and formulæ. Much more might be written about the contents of this volume, but it is hoped that sufficient has been said to enable the reader to form the opinion that it ought to find a place in every photographic studio.

The frontispiece is an excellent bromide print by Messrs. Wellington and Ward from a negative by Mr. H. Walter Barnett, and numerous other illustrations will be found intermingled with the text.

*The Elements of Blowpipe Analysis.* By Frederick Hutton Getman. Pp. 77. (New York: The Macmillan Company. London: Macmillan and Co., Ltd., 1899.)

THE contents of this slight book include the orthodox blowpipe tests such as are found in most books on qualitative analysis, together with an account of the behaviour of some of the principal ores before the blowpipe. A meritorious feature is that the general chemical action of the common fluxes is explained. In other respects it is not easy to find points calling for special praise. An incorporation of some at least of the admirable tests described in Bunsen's "Flammenreactionen" would have made an improvement. The following minor errors are perhaps worth noting. On p. 10, decrepitation is described as "the crackling of a substance due to the sudden expansion of combined water on heating," and incandescence as "the white light emitted by a substance that is infusible when subjected to a high temperature." On pp. 11 and 13, silver oxide is printed AgO. On p. 17, the formulæ of borax and microcosmic salt are given without water of crystallisation—an important omission from the assayer's point of view. On p. 40, the only test for phosphates is that of flame colouration, the reduction with sodium or magnesium being omitted.

*The Elements of Euclid.* Books i.-vi. By R. Lachlan. New and revised edition. Pp. ix + 489. (London: Edward Arnold, 1899.)

THE editor of these Elements tells us in the preface that he has endeavoured to make the subject as easy as possible for beginners by the use of simple language, and by presenting the argument in the clearest form. Further, he has attempted to embody in the book, and with great success, the additions and improvements in statement and method which twelve years' experience as an examiner and teacher has shown to be desirable. Throughout the book Euclid's sequence of propositions has been maintained, but in many cases several well-known alternative proofs have been substituted for those of Euclid. In places where the student might experience

difficulties fuller notes are added; and attached occasionally to propositions are others which it is important for the beginner to know. The appendix to the last book contains many interesting problems of theorems for more advanced students, and this is followed by a considerable number of miscellaneous exercises. Students and teachers should find this form of the Elements of Euclid in many respects serviceable.

*Essais du Commerce et de l'Industrie.* By L. Cuniasse and R. Zwilling. Pp. viii + 302. (Paris: Carré and Naud, 1899.)

THE essential features of a book dealing with the subject of commercial analysis, whether intended for student or professional analyst, are careful elaboration and extreme minuteness of detail. As it is impossible for any analyst to have had an experience of more than a limited number of analytical processes, or at least such an experience as would justify him in publishing them, one naturally expects a book on commercial analysis to be devoted to special branches of the subject, unless, of course, a number of writers co-operate in its production. There are many special treatises of the kind relating to assaying, iron and steel analysis, to the analysis of soaps and fats, tanning materials, &c., which supply everything that is needful in this respect. To state that the present volume contains an account of nearly every branch of commercial analysis within the compass of 279 small octavo pages, that the subjects of leather, glue, vinegar, &c., are dismissed in one page, and that the analyses of other products are treated in the same cursory and superficial manner, is a doubtful recommendation.

*Dairy Chemistry: a Practical Handbook for Dairy Chemists and others having control of Dairies.* By H. Droop Richmond. Pp. xix + 384. (Charles Griffin and Co., 1899.)

THIS is a handbook for the chemist's laboratory, and deals especially with the matters on which his opinion will be asked, and with the methods of examination he may employ. Although of considerable size, it by no means includes the whole subject of dairy chemistry. The relations of the cow's diet to milk production, and its influence on the quality of the milk, and also the chemistry of dairy operations, are not discussed, though some parts of these subjects are referred to by the way. The author has had peculiarly favourable opportunities for becoming a master of his subject, and the book is full of information which will be valuable to the dairy chemist. Nevertheless, it is not unfrequently disappointing. The different parts of the subject are treated with very different degrees of fulness, and the expositions are not always clear. The book will be of most use to those who are already acquainted with the subject.

*A Manual of Surgical Treatment.* By Prof. W. Watson Cheyne, F.R.S., and F. F. Burghard, F.R.C.S. In six parts. Part ii. Pp. xix + 382. (London: Longmans, Green and Co., 1899.)

THE second part of this manual of surgical treatment fully justifies the good opinion which was recently expressed in these pages of the first part. It deals with deformities, the surgical affections of the skin, nails, lymphatics, bursæ, muscles, tendons, nerves and blood-vessels. The authors prefix to the volume a very proper statement that it is their endeavour to give only the salient points in the symptoms and pathology of surgical diseases, whilst they enter more fully into the question of treatment. The various topics are treated in a clear and concise manner, the information is accurate and modern, and there is an excellent index. If the future parts fulfil the promise of those already issued, the work will take rank as one of the best amongst the many surgical treatises which have recently issued from the English press.

D'A. P.